

REMARKS

The present application relates to hybrid maize plant and seed 34B97. Claims 1-32 are currently pending in the present application. Applicants respectfully request consideration of the following remarks.

I. Specification

The specification is objected to for containing blank lines on page 7 in the last paragraph.

Applicants respectfully submit that the actual ATCC deposit will be delayed until the receipt of notice that the application is otherwise in condition for allowance. As provided in 37 C.F.R. §§ 1.801-1.809, Applicants wish to reiterate they will refrain from deposit of Hybrid 34B97 until allowable subject matter is indicated. Once such notice is received, an ATCC deposit will be made, and the specification will be amended to contain the accession number of the deposit, the date of the deposit, a description of the deposited biological material sufficient to specifically identify it and to permit examination and the name and address of the depository. In addition, Applicants submit that at least 2,500 seeds of Variety 34B97 will be deposited with the ATCC. In view of this assurance, the rejection under 35 U.S.C. § 112, first paragraph, should be removed (MPEP § 2411.02). Such action is respectfully requested.

II. Detailed Action

Applicants submit new claims 33-43 have been added. These claims are supported by the specification and do not add new matter.

III. Claim Objections

Claims 6, 12, 16, 25, and 29 were objected to. The Examiner states in line 1 of the claims, "A" should be --The--.

Applicants have amended the claims by replacing "A" with --The--, thus alleviating this rejection.

IV. Double Patenting

Claims 1-32 were rejected under the doctrine of obviousness-type double patenting as being unpatentable over claims 1-31 of US Patent No. 6,265,646 ('646). The Examiner states that although the conflicting claims are not identical, they are not patentably distinct from each

other because they both appear to be drawn to the same maize seeds, plants, plant parts, and methods. The instantly claimed plants and the patented plants have different designations. The designation "34B97" of the instantly claimed cultivar is arbitrarily assigned, and does not provide any patentable distinction from the cultivar claimed in '646, "36G12". Any differences between 34B97 and 36G12 of '646 are due to minor morphological variations that do not confer patentable distinction. The instantly claimed maize plants that have as at least one ancestor 34B97, or 34B97 containing one or more transgenes, or 34B97 containing one or more genes transferred by backcrossing would then be encompassed by the patented maize plants that have at least one ancestor 36G12, or 36G12 containing one or more transgenes, or 36G12 containing one or more genes transferred by backcrossing. The Examiner concludes that since 34B97 and 36G12 are not patentably distinct, the claimed methods that comprise their use are obviously the same as well. Therefore, a patent issuing from the instant application would then effectively extend the patent term of the claims of '646.

Applicant traverse. Claims 1-32 are patently distinct because they involve a novel maize seeds, plants, plant parts, and methods. Applicants arguments are set forth infra in Claim Rejections 102/103 section.

Applicant further asserts the use of the designation "34B97" is not arbitrarily assigned. It is common practice within plant breeding that a new and distinct maize seed is designated with a numerical number such as 34B97 which defines the claimed hybrid maize seed which will be deposited under an ATCC accession number. The use of such a designation is a common practice within the art and would be well understood by one skilled in the art to be two distinct and unrelated hybrid maize seeds. In addition, as provided in 37 C.F.R. §§ 1.801-1.809, Applicant wishes to reiterate they will refrain from deposit of Hybrid 34B97 until allowable subject matter is indicated. Once deposit is completed Applicant will amend claims 1, 5 and 7 accordingly and this rejection will be moot. Therefore, Applicant submits this terminology is not indefinite and reconsideration is respectfully requested.

V. Claim Rejections-35 USC §112

Claims 1-32 were rejected under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Examiner states that the recitation "34B97" in claims 1, 5, 7, 11, 15, 19, 24, 28, and 32 render the claims and those dependent thereon indefinite. Since the name "34B97" is not known in the art, the use of said name does not carry art-recognized limitations as to the specific or essential characteristics that are associated with that denomination. The name "34B97" does not clearly identify the claimed seeds, plants, and plant parts, and does not set forth the metes and bounds of the claimed invention. The name appears to be arbitrarily assigned and the specific characteristics associated therewith could be modified. The missing ATCC accession number in claims 1, 5, and 7 similarly renders the claims indefinite, as the claims do not clearly identify the deposited seed. The Examiner states that amending claims 1, 5, and 7 to recite the ATCC deposit number in which hybrid maize seed 34B97 has been deposited would overcome this rejection.

Applicants traverse. As stated previously the use of the designation "34B97" is not indefinite. One ordinarily skilled in the art would clearly understand that this designation is drawn to a new and distinct hybrid maize seed with the designation of 34B97 and the morphological and physiological traits that are disclosed in the specification. (See Tables 1, pgs. 18-28; Table 2, pgs. 23-30; Table 3, p. 32; Table 4 pgs. 33-34). Applicant asserts that the use of such a designation is a common practice within the art and would be well understood by one skilled in the art to be designating two distinct and different hybrid maize seeds. In addition, Applicant wishes to reiterate that under 37 C.F.R. §§ 1.801-1.809, Applicant will refrain from deposit of hybrid 34B97 until allowable subject matter is indicated. Once deposit is completed, Applicant will amend claims 1, 5 and 7 accordingly and this rejection will be moot.

The Examiner states in claims 11, 15, 19, 24, 28, and 32 the terms "excellent", "above average", and "suited" are relative terms that have no definite meaning. The terms do not reasonably apprise one of the scope of the invention. It is not clear what type of yield, grain yield, pollen yield, seed yield, etc., the recitation is referring to. The recitation "Central Corn Belt, Western and drylands regions of the United States" also renders the claims indefinite. It is not exactly clear what states or geographic areas define these regions.

Applicants traverse this rejection. Each of these claims recites two requirements, first that 34B97 be an ancestor of the plant and second, that the claimed plant be "capable of expressing a combination of at least two 34B97 traits" selected from a Markush grouping. Applicant notes that the Markush listing is directed to "34B97" traits. Thus, Applicant submits

that the recitation of 34B97 traits clearly delineates the traits listed as those which are from 34B97 or ancestors thereof. The recitation of "34B97" in front of the term traits clearly indicates that the traits must be originating from 34B97. This is particularly so since the claim also requires that the plant 34B97 must be an ancestor of the claimed plant. Applicant further submits that the adjectives used within the claims are not unduly narrative or imprecise as they do clearly characterize and positively recite the degree of expression of the particular traits within the application in Tables 1-4 (see generally pages 18-34). This terminology is well known in the art and commonly used within breeding techniques of hybrid plants. In addition, Applicant asserts it is exactly clear what states or geographic areas define these regions and would be understood to one skilled in the art. Applicant respectfully submits that this language is not indefinite and would be understood by one in the art and is the terminology of use within the art. Therefore, Applicant respectfully requests reconsideration.

Furthermore, in Georgia-Pacific, the Federal Circuit stated that "...the policy of the patent statute contemplates granting protection to valid inventions, and this policy would be defeated if protection were to be accorded only to those patents which were capable of precise definition." Georgia-Pacific Corp. v. U.S. Plywood Corp., 258 F. 2d 124, 136, 118 USPQ 122 (2d Cir.), cert. denied, 358 US 884 (1958). While some decisions have advocated the general statement that "[a]n invention must be capable of accurate definition, and it must be accurately defined, to be patentable" (See United Carbon Co. v. Binney & Smith Co., 1942, 317 US 228, 237, 63 S.Ct. 165, 170, 87 L.Ed. 232), the Federal Court has stated that "such general statements, however, must be viewed in the context of circumstances. Objectionable indefiniteness must be determined by the facts in each case, not by reference to an abstract rule." Georgia-Pacific at 136. "Patentable inventions cannot always be described in terms of exact measurements, symbols and formulae, and the applicant necessarily must use the meager tools provided by language, tools which admittedly lack exactitude and precision. If the claims read in light of the specifications, reasonably apprise those skilled in the art both of the utilization and scope of the invention, and if the language is as precise as the subject matter permits, the courts can demand no more." Georgia-Pacific at 136. (See North Am. Vaccine, Inc. v. American Cyanamid Co., 7 F.3d 1571, 28 USPQ 2d 1333, 1339 (Fed. Cir. 1993)).

Moreover, it is against the policy of the patent statutes to bar patent protection for inventions that are incapable of precise definition. Georgia-Pacific Corp. v. U.S. Plywood Corp.,

258 F. 2d 124, 118 USPQ 122 (2d Cir.), cert. denied, 358 US 884 (1958). With respect to the above-mentioned terms, the claims are as precise as the subject matter of the invention permits.

With respect to the regions of the United States, Applicants have amended the claims by stating what states make up these regions, thus alleviating this rejection.

Claims 10, 14, 18, 23, 27, and 31 are indefinite for improper antecedent basis. The Examiner states the claims indicate they are directed to the corn plant breeding program of claims 9, 13, 17, 22, 26, and 30, respectively. However, claims 9, 13, 17, 22, 26, and 30 are directed to methods, not programs. The Examiner suggests that the recitation "corn plant breeding program" in line 1 of claims 10, 14, 18, 23, 27, and 31 be replaced with --method--.

Applicants have amended the claims in accordance to Examiner's suggestion by changing the recitation "corn plant breeding program" in line 1 of claims 10, 14, 18, 23, 27 and 31 with --method--, thus alleviating this rejection.

VI. Claim Rejections- 35 U.S.C. § 112

Claims 8, 11-19, 21, and 24-32 were rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The Examiner asserts the claims are broadly drawn and then lists what the specification describes. However, the Examiner states on page 6 of the instant Office Action that the specification does not describe 34B97 as being male sterile. The specification discusses how plants may be manipulated to be male sterile, however, the morphological and physiological description of plant 34B97 described in the specification does not indicate that it is male sterile.

Applicants have amended claims 8 and 21 by adding the recitation --has been manipulated to be male sterile--, thus alleviating this rejection. Support can be found on page 13 of the specification, between the definitions for POL WT and POP K/A wherein it states "[i]t should be understood that the inbred can, through routine manipulation of cytoplasmic or other factors, be produced in a male-sterile form. Such embodiments are also contemplated within the scope of the present claims."

Next, the Examiner asserts the specification also does not describe the plants developed by the maize breeding programs, transgenic 34B97 plants, 34B97 plants further comprising genes transferred by backcrossing, or maize plants wherein at least one ancestor is corn variety 34B97 and which expresses at least two of the traits listed in claims 11, 15, 19, 24, 28, or 32. The morphological and physiological traits of the corn plants that are crossed with 34B97, and with progeny of that cross are unknown, and the description of progeny and descendants of corn plant 34B97 are unknown. The Examiner further asserts that the description of corn plant 34B97 is not indicative of any of its descendants. To say that a plant expresses two traits of another plant is not sufficient information to describe that plant, as numerous plants express at least two of the same traits as those expressed by 34B97. Two plant traits do not provide any description of the other traits of a plant. It is possible that the claimed plants inherited the genes governing those traits from an ancestor other than plant 34B97.

Given the breadth of the claims encompassing corn plant 34B97 having male sterility, corn plants expressing at least two traits that are also expressed by 34B97, any transgenic 34B97 plant, any 34B97 plant further having any gene(s) introduced by backcrossing, methods comprising the use of such plants, lack of guidance of the specification as discussed above, the specification fails to provide an adequate written description of the multitude of corn plants and their parts encompassed by the claims.

Applicant traverses this rejection. Applicant has amended claims 11, 15, 19, 24, 28 and 32 by adding the threshold, having 50% of the ancestral alleles, that limits the variation permitted among the genus, as well as an assayable function, capable of expressing at least a combination of two traits of 34B97. There is literal support for the amended claims found in the specification on page 3 and beginning on page 29 of the instant specification. Plant breeding techniques known in the art and used in the maize plant breeding program include, but are not limited to the following: recurrent selection backcrossing, pedigree breeding, restriction length polymorphism enhanced selection, genetic marker enhanced selection and transformation. With the amendments to the above-stated claims, Applicant has identified a transgenic 34B97 plant (claim 12), a 34B97 plant further comprising genes transferred by backcrossing (claim 16), or a maize plant wherein at least one ancestor is maize variety 34B97 (claim 15) by defining a particular threshold that limits variation and reciting a functional test to identify such plants. In addition, Applicant has drafted new claims 33-43 which Applicant believes come within the purview of

the written description requirement and do not add new matter. Under the written description requirement, Applicant should be allowed to claim the progeny of a cross of maize plants crossed with 34B97 with phenotypic characteristics since distinguishing identifying characteristics in the chemical and biotechnological arts, dealing with DNA, are those such as: partial structure, physical and/or chemical properties, functional characteristics, known or disclosed correlation between structure and function, method of making, and combinations of the above. In plants, these identifying characteristics are those detectable in the phenotype which are manifested through gene expression. Claims to a particular species of invention are adequately described if the disclosure of relevant identifying characteristics are present in the application. Again, one of ordinary skill in the art is reasonably apprised in knowing that a plant crossed with 34B97 will result in a plant having half of the genetic contribution of 34B97. A further limitation set by Applicant is that the plants must be capable of expressing a combination of at least two phenotypic characteristics of 34B97.

Further, Applicant asserts the specification supplies an extensive definition and description of 'transgene' and transgenes of interest. (See generally pages 35, last paragraph to pg. 30 and pages 41-44 for an extensive list of potential transgenes.) Applicant also notes, a person having skill in the art could insert a DNA gene into a selected maize plant. The Examiner also states that the insertion of a single copy of a gene into a plant would produce a plant that is indistinguishable from its non-transformed plant. Applicant has defined transgenes in the present application in the paragraph that spans pages 35-36 as follows:

With the advent of molecular biological techniques that have allowed the isolation and characterization of genes that encode specific protein products, scientists in the field of plant biology developed a strong interest in *engineering the genome of plants to contain and express foreign genes, or additional genes* (perhaps driven by different promoters) in order to alter the traits of a plant in a specific manner. *Such foreign, additional and/or modified genes are referred to herein collectively as "transgenes".* Over the last fifteen to twenty years several methods for producing transgenic plants have been developed, and *the present invention, in particular embodiments, also relates to transgenic versions of the claimed hybrid maize line 34B97.*

The present application clearly describes and defines a transgene to be a gene transferred into a plant wherein the product of that gene is expressed. This expression will confer a new or

improved trait into that plant. However, this gene is but a tiny fraction of the entire genome. In other words, the plant of claim 12 is distinguishable from the prior art plants just as is hybrid 34B97 without the transgenes. Further, the plant of claim 12 also contains a trait(s) that is either improved or additional to the traits of the maize plant of claim 2. The 34B97-transgene plant still expresses the unique combination of traits of 34B97 without the transgenes with the exception of the traits expressed by the transgenes. The trivial modifications introduced by the transgenes to the unique invention of 34B97 are clearly supported and described in the present application.

Finally, the Examiner asserts that the specification provides a narrative of the transgene within the scope of the claim to particularly point out and distinctly claim the subject matter the applicant regards as the invention. However, Applicant respectfully submits that "[t]he test for definiteness is whether one skilled in the art would understand the bounds of the claim when read in light of the specification. . . . If the claims read in light of the specification reasonably apprise those skilled in the art of the scope of the invention, § 112 demands no more. . . . The degree of precision necessary for adequate claims is a function of the nature of the subject matter." Miles Laboratories, Inc. v. Shandon Inc., 997 F.2d 870 (Fed. Cir. 1993).

In light of the above remarks, Applicant respectfully requests reconsideration and withdrawal of the rejections to claims 8, 11-19, 21 and 24-32 under 35 U.S.C. § 112, first paragraph.

Claims 1-32 were rejected under 35 USC 112, first paragraph, as containing subject matter which is not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The Examiner states the claims are broadly drawn. Since the claimed seed of maize hybrid line 34B97 is essential to the claimed invention, it must be obtainable by a repeatable method set forth in the specification or otherwise be readily available to the public. The Examiner further states that if the seed is not so obtainable or available, a deposit thereof may satisfy the requirements of 35 USC 112. The specification does not disclose a repeatable process to obtain the exact same seed in each occurrence and it is not apparent if such a seed is readily available to the public. The Examiner further states that if the seeds are deposited under the terms of the Budapest Treaty, then an affidavit or declaration by the Applicants, or a statement

by an attorney of record over his/her signature and registration number, stating that the seed will be irrevocably and without restriction or condition released to the public upon the issuance of a patent would satisfy the deposit requirement made herein.

Applicant wishes to state that the actual ATCC deposit will be delayed until the receipt of notice that the application is otherwise in condition for allowance. Once such notice is received, an ATCC deposit will be made, and the specification will be amended to contain the accession number of the deposit, the date of the deposit, a description of the deposited biological material sufficient to specifically identify it and to permit examination and the name and address of the depository. The claims will also be amended to recite the ATCC deposit number. In addition, Applicant submits that at least 2,500 seeds of Hybrid 34B97 will be deposited with the ATCC.

In light of the above remarks, Applicant submits that claims 1-32 clearly describe and distinctly claim the subject matter Applicant regards as the invention. Applicant respectfully requests reconsideration and withdrawal of the rejections under 35 U.S.C. § 112, first paragraph.

VII. Issues Under 35 U.S.C. § 102/103

Claims 1-32 were rejected under 35 U.S.C. § 102(e) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Chapman (U.S. Patent 6,265,646).

The Examiner states the claims are broadly drawn.

The Examiner states Chapman teaches seed of a hybrid maize line designated "36G12", plants produced by growing said seed, and plant parts, including pollen and ovules. It appears the claimed plants and seeds of the instant invention may be the same as 36G12, given that they exhibit similar traits. Alternatively, if the claimed plants, plant parts, and seeds of 36G12 are not identical to 36G12, then it appears that 36G12 only differs from the instantly claimed plants, plant parts, and seeds due to minor morphological variation, wherein said minor morphological variation would be expected to occur in different progeny of the same cultivar, and wherein said minor morphological variation would not confer a patentable distinction to 36G12.

The Examiner also states Chapman teaches a maize plant having all the morphological and physiological characteristics of 36G12 and being male sterile, and methods to confer male sterility to corn plants, and asserts that large-scale commercial maize hybrid production requires the use of some form of male sterility, and that a reliable method of controlling male fertility in plants also offers the opportunity for improved plant breeding. Chapman also teaches production

of tissue culture of regenerable cells from a plant of line 36G12, wherein regenerable cells are from tissues including flowers, pollen, ovules, among others; a plant produced from tissue culture 36G12 that is capable of expressing all the morphological and physiological traits of 36G12; corn plant breeding programs, including backcrossing, pedigree breeding, recurrent selection, among others; maize plants having as at least one ancestor 36G12, or 36G12 containing one or more transgenes, or 36G12 containing one or more genes transferred by backcrossing; use of backcrossing to introduce gene(s) for desirable traits; 36G12 comprising at least one transgene, and using the plant in maize breeding programs; maize plants produced by those breeding programs, 36G12 comprising gene(s) introduced by backcrossing, and use of the plant in a method for developing a plant for breeding programs. The claimed invention was prima facie obvious as a whole to one of ordinary skill in the art at the time it was made, if not anticipated by Chapman.

Applicants traverse. The Applicants would like to point out that the inventions 34B97 and 36G12 are not the same inventions. Nor are their differences minor morphological variations. Applicants submit that the claimed plant cannot be rendered obvious as it possesses a unique combination of traits which confers a unique combination of genetics.

Moreover, Applicants claim a method of making a plant which did not previously exist. Pursuant to the recent Federal Circuit decision, Elan Pharmaceuticals, Inc. v. Mayo Foundation for Medical Education & Research, No. 00-1467 (Fed. Cir. Aug. 30, 2002), "a novel patented product is not "anticipated" if it did not previously exist." Id. This is the case whether or not the process for making the new product is generally known. Id. The invention 34B97 has not previously existed as it is the result of the crossing the two maize inbred lines GE533003 and GE567919.

Furthermore, the inventions 34B97 and 36G12 differ for various traits that are not minor. See Tables 2A, 2B and Table 2C of the instant specification and Patent '646. When looking at the tables of both inventions, hybrids created using 34B97 as one of the parents are clearly not anticipated by hybrids made using 36G12 as one of the parents.

Applicants further submit that the claims do not simply recite traits, but instead recites these specific traits only to the extent that they are "34B97" traits; thereby being derived from the seed/germplasm of 34B97. Note, variety with respect to agricultural variety, can be defined as a group of similar plants that by structural features and performance can be identified from

other varieties within the same species. Moreover, the claims also recites that the claimed plant must have 34B97 as an ancestor further indicating that these traits were derived from the 34B97 plant.

In response to the Examiner's contention that one could not distinguish the claimed plant from the prior art which shows each of these traits, Applicants submit that one can easily tell by reference to the plants breeding history, which can be confirmed by its molecular profile, the claimed plant has plant 34B97 as an ancestor and expresses two or more "34B97" traits. Further, any phenotypic trait that is expressed is the result of the genetic material present in the plant, and 34B97 will have its own unique genetic background that will give rise to the claimed plant and this profile along with its combination with other plants will result in a unique combined genetic profile that is the product claimed. There is no expectation of success that the crossing of the Hybrid 36G12 with some yet to be identified plant would yield a plant with two of the traits enumerated in the claimed invention because that particular plant did not begin with the claimed seed 34B97 which is essential. Applicant asserts that it is not the phenotypic characteristics alone that are claimed and taught in the instant invention. It is a combination of physiological and morphological characteristics, as claimed, which make the present Hybrid non-obvious and not anticipated over Chapman. Further, In re Thorpe, states that "a product by process claim may be properly rejected over prior art teaching the same product produced by a different process", as noted by the Examiner. 227 U.S.P.Q. 964, 966 (Fed. Cir. 1985). However, Applicant submits that this is not the same product physiologically or morphologically as the cited prior art as can be evidenced by one skilled in the art through analysis of the data tables in each. In addition, it is impermissible to use hindsight reconstruction and the benefit of Applicant's disclosure to pick among pieces which are present in the art, there must be some suggestion to make the combination and an expectation of success. In re Vaeck, 20 U.S.P.Q.2d 1434 (Fed. Cir. 1991). Thus, the present application deserves to be considered new and non-obvious compositions in their own right as products of crossing when 34B97 is used as a starting material.

In light of the above, Applicants respectfully request the Examiner reconsider and withdraw the rejection to claims 1-32 stand rejected under 35 U.S.C. § 102(e) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Chapman (U.S. Patent 6,265,646).

VIII. Issues Under 35 U.S.C. § 103

Claims 1-32 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Chapman (U.S. Patent 6,265,646). The Examiner states the "claims are drawn to a hybrid maize plant exhibiting all of the characteristics of 36G12".

Applicants traverse. When looking at a maize plant it would be possible to find many traits that are similar between varieties such as the color of flowers or growth habit. However, to say there are similarities in phenotype between two varieties is not the same as saying that the two varieties have the same morphological and physiological characteristics as a whole, or that one is an obvious variant of the other. Further, similarity in phenotype does not mean that the two varieties will perform similarly, particularly in a breeding program. As stated above, variety with respect to agricultural variety may be defined as a group of similar plants that by structural features and performance can be identified from other varieties within the same species.

Applicants submit that hybrid 34B97 does not exhibit the same characteristics as 36G12. Chapman does not teach or suggest hybrid maize plant 34B97 developed by a maize breeding program or the use of hybrid maize plant 34B97 in the production of tissue culture. It must be recognized that the hybrids provided by this invention are themselves unusual and unobvious results of a common process, in that they provide the unique combination of traits such as significantly superior resistance to brittle stalk, and significantly better tolerance to Northern Leaf Blight, and significantly shorter plant stature and a significantly lower number of growing degree units to silk. Thus, hybrid 34B97 is to be considered a new and non-obvious composition in its own right, as does its tissue culture as products of the process when 34B97 is used as starting material. Applicants point out that 34B97 is a unique plant hybrid which never before existed until Applicants filed the application and until its deposit of the same. As will be demonstrated below, several morphological and physiological characteristics of hybrid 34B97 are either different from or not present in 36G12.

*Differences between the two varieties are summarized in the table below:

<u>CHARACTERISTICS</u>	<u>34B97</u>	<u>36G12</u>
Plant:		
Ear Height (cm)	0,122.0	0,106.3
Tassel:		
Glume color	Purple	Light Green
Peduncle Length (cm from top leaf to basal branches)	25	2
Ear (Unhusked):		
Finish Husk color (25d after 50% silking)	Dark Green	Light Green
Position of Ear at Dry Husk Stage	Pendant	Upright
Ear (Husked):		
Ear weight	224 gm	210 gm
Number of kernel rows	16	45
Kernel (Dried)		
% Round kernels (Grade)	50	16
Disease Resistance:		
Southern Leaf Blight (<i>Bipolaris maydis</i>)	6, where 1=most susceptible to 9=most resistant	No teaching
Systemic Diseases:		
Corn Lethal Necrosis (MCMV and MDMV)	4, where 1=most susceptible to 9=most resistant	No teaching
Insect Resistance		
1 st Generation (Typically Whorl Leaf Feeding)	5, where 1=most susceptible to 9=most resistant	No Teaching
2 nd Generation (Typically Leaf Sheath-Collar Feeding)	4, where 1=most susceptible to 9=most resistant	No Teaching

*Difference drawn from the Tables 1 of instant specification and Patent '646.

This comparison clearly shows that 36G12 does not exhibit the characteristics of hybrid 34B97.

In light of the above, Applicants respectfully request the Examiner reconsider and withdraw the rejection to claims 1-32 under 35 U.S.C. § 103(a).

IX. Conclusion


In conclusion, Applicants submit in light of the above amendments and remarks, the claims as amended are in a condition for allowance, and reconsideration is respectfully requested.

No additional fees or extensions of time are believed to be due in connection with this amendment; however, consider this a request for any extension inadvertently omitted, and charge any additional fees to Deposit Account No. 26-0084.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "Version with markings to show changes made."

Reconsideration and allowance is respectfully requested.

Respectfully submitted,



Edmund J. Sease, Reg. No. 24,741
McKEE, VOORHEES & SEASE
801 Grand Avenue, Suite 3200
Des Moines, Iowa 50309-2721
Phone No. (515) 288-3667
Fax No. (515) 288-1338
CUSTOMER NO: 27142

Attorneys of Record

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Application No. 09/759,790

**AMENDMENT — VERSION WITH MARKINGS
TO SHOW CHANGES MADE**

In the Specification

The paragraph beginning at page 35, line 32 has been amended as follows:

With the advent of molecular biological techniques that have allowed the isolation and characterization of genes that encode specific protein products, scientists in the field of plant biology developed a strong interest in engineering the genome of plants to contain and express foreign genes, or additional, or [modified] modified versions of native or endogenous genes (perhaps driven by different promoters) in order to alter the traits of a plant in a specific manner. Such foreign, additional and/or modified genes are referred to herein collectively as "transgenes". Over the last fifteen to twenty years several methods for producing transgenic plants have been developed, and the present invention, in particular embodiments, also relates to transgenic versions of the claimed hybrid maize line 34B97.

In the Claims

Please amend the following claims:

6. (Amended)

[A] The tissue culture according to claim 5, the cells or protoplasts being from a tissue selected from the group consisting of leaves, pollen, embryos, roots, root tips, anthers, silks, flowers, kernels, ears, cobs, husks, and stalks.

8. (Amended)

The maize plant of claim 2 wherein said plant has been manipulated to be [is] male sterile.

10. (Amended)

The [maize plant breeding program] method of claim 9 wherein plant breeding techniques are selected from the group consisting of: recurrent selection, backcrossing, pedigree breeding, restriction fragment length polymorphism enhanced selection, genetic marker enhanced selection, and transformation.

11. (Amended)

A maize plant or its parts, wherein at least one ancestor of said maize plant is the maize plant, or its parts of claim 2, wherein said maize plant has derived at least 50% of its ancestral alleles from 34B97 [said maize plant] and is capable of expressing a combination of at least 34B97 traits selected from the group consisting of: excellent yield potential for its maturity, above average tolerance to Fusarium Ear Rot, above average test weight, above average grain quality, above average brittle stalk resistance, above average artificial brittle stalk resistance, above average tolerance to Northern Leaf Blight, [suited] favorable to [the Central Corn Belt, Western and drylands regions of the United States] Iowa, Illinois, Indiana, North Dakota, South Dakota, Nebraska, Kansas, Colorado, Oklahoma, and California, and a relative maturity of approximately 107 based on the Comparative Relative Maturity Rating System for harvest moisture of grain.

12. (Amended)

[A] The hybrid maize plant according to claim 2, wherein the genetic material of said plant contains one or more transgenes.

14. (Amended)

The [maize plant breeding program] method of claim 13 wherein plant breeding techniques are selected from the group consisting of: recurrent selection, backcrossing, pedigree breeding, restriction fragment length polymorphism enhanced selection, genetic marker enhanced selection, and transformation.

15. (Amended)

A maize plant or its parts, wherein at least one ancestor of said maize plant is the maize plant, or its parts of claim 12, wherein said maize plant has derived at least 50% of its ancestral alleles from 34B97 [said maize plant] and is capable of expressing a combination of at least 34B97 traits selected from the group consisting of: excellent yield potential for its maturity, above average tolerance to Fusarium Ear Rot, above average test weight, above average grain quality, above average brittle stalk resistance, above average artificial brittle stalk resistance, above average tolerance to Northern Leaf Blight, [suited] favorable to [the Central Corn Belt, Western and drylands regions of the United States] Iowa, Illinois, Indiana, North Dakota, South Dakota, Nebraska, Kansas, Colorado, Oklahoma, and California, and a relative maturity of approximately 107 based on the Comparative Relative Maturity Rating System for harvest moisture of grain.

16. (Amended)

[A] The hybrid maize plant according to claim 2, wherein the genetic material of said plant contains one or more genes transferred by backcrossing.

18. (Amended)

The [maize plant breeding program] method of claim 17 wherein plant breeding techniques are selected from the group consisting of: recurrent selection, backcrossing, pedigree breeding, restriction fragment length polymorphism enhanced selection, genetic marker enhanced selection, and transformation.

19. (Amended)

A maize plant or its parts, wherein at least one ancestor of said maize plant is the maize plant, or its parts of claim 16, wherein said maize plant has derived at least 50% of its ancestral alleles from 34B97 [said maize plant] and is capable of expressing a combination of at least 34B97 traits selected from the group consisting of: excellent yield potential for its maturity, above average tolerance to Fusarium Ear Rot, above average test weight, above average grain quality, above average brittle stalk resistance, above average artificial brittle stalk resistance, above average tolerance to Northern Leaf

Blight, [suited] favorable to [the Central Corn Belt, Western and drylands regions of the United States] Iowa, Illinois, Indiana, North Dakota, South Dakota, Nebraska, Kansas, Colorado, Oklahoma, and California, and a relative maturity of approximately 107 based on the Comparative Relative Maturity Rating System for harvest moisture of grain.

21. (Amended)

The maize plant of claim 20 wherein said maize plant has been manipulated to be [is] male sterile.

23. (Amended)

The [maize plant breeding program] method of claim 22 wherein plant breeding techniques are selected from the group consisting of: recurrent selection, backcrossing, pedigree breeding, restriction fragment length polymorphism enhanced selection, genetic marker enhanced selection, and transformation.

24. (Amended)

A maize plant or its parts, wherein at least one ancestor of said maize plant is the maize plant, or its parts of claim 20, wherein said maize plant has derived at least 50% of its ancestral alleles from 34B97 [said maize plant] and is capable of expressing a combination of at least 34B97 traits selected from the group consisting of: excellent yield potential for its maturity, above average tolerance to Fusarium Ear Rot, above average test weight, above average grain quality, above average brittle stalk resistance, above average artificial brittle stalk resistance, above average tolerance to Northern Leaf Blight, [suited] favorable to [the Central Corn Belt, Western and drylands regions of the United States] Iowa, Illinois, Indiana, North Dakota, South Dakota, Nebraska, Kansas, Colorado, Oklahoma, and California, and a relative maturity of approximately 107 based on the Comparative Relative Maturity Rating System for harvest moisture of grain.

25. (Amended)

[A] The hybrid maize plant according to claim 20, wherein the genetic material of said plant contains one or more transgenes.

27. (Amended)

The [maize plant breeding program] method of claim 26 wherein plant breeding techniques are selected from the group consisting of: recurrent selection, backcrossing, pedigree breeding, restriction fragment length polymorphism enhanced selection, genetic marker enhanced selection, and transformation.

28. (Amended)

A maize plant or its parts, wherein at least one ancestor of said maize plant is the maize plant, or its parts of claim 25, wherein said maize plant has derived at least 50% of its ancestral alleles from 34B97 [said maize plant] and is capable of expressing a combination of at least 34B97 traits selected from the group consisting of: excellent yield potential for its maturity, above average tolerance to Fusarium Ear Rot, above average test weight, above average grain quality, above average brittle stalk resistance, above average artificial brittle stalk resistance, above average tolerance to Northern Leaf Blight, [suited] favorable to [the Central Corn Belt, Western and drylands regions of the United States] Iowa, Illinois, Indiana, North Dakota, South Dakota, Nebraska, Kansas, Colorado, Oklahoma, and California, and a relative maturity of approximately 107 based on the Comparative Relative Maturity Rating System for harvest moisture of grain.

29. (Amended)

[A] The hybrid maize plant according to claim 20, wherein the genetic material of said plant contains one or more genes transferred by backcrossing.

31. (Amended)

The [maize plant breeding program] method of claim 30 wherein plant breeding techniques are selected from the group consisting of: recurrent selection, backcrossing, pedigree breeding, restriction fragment length polymorphism enhanced selection, genetic marker enhanced selection, and transformation.

32. (Amended)

A maize plant or its parts, wherein at least one ancestor of said maize plant is the maize plant, or its parts of claim 29, wherein said maize plant has derived at least 50% of its ancestral alleles from 34B97 [said maize plant] and is capable of expressing a combination of at least 34B97 traits selected from the group consisting of: excellent yield potential for its maturity, above average tolerance to Fusarium Ear Rot, above average test weight, above average grain quality, above average brittle stalk resistance, above average artificial brittle stalk resistance, above average tolerance to Northern Leaf Blight, [suited] favorable to [the Central Corn Belt, Western and drylands regions of the United States] Iowa, Illinois, Indiana, North Dakota, South Dakota, Nebraska, Kansas, Colorado, Oklahoma, and California, and a relative maturity of approximately 107 based on the Comparative Relative Maturity Rating System for harvest moisture of grain.

Please add the following new claims:

33. (New)

A method of making a hybrid maize plant designated 34B97 comprising:
crossing an inbred maize plant GE533003, deposited as _____ with a second inbred maize plant GE567919, deposited as _____; and
developing from the cross a hybrid maize plant representative seed of which having been deposited under ATCC Accession Number _____.

34. (New)

A method of making an inbred plant comprising:
obtaining a hybrid maize plant 34B97 and
generating from said hybrid maize plant a parental inbred parent line, said line selected from the group consisting of GE533003 deposited as _____ and GE567919 deposited as _____.

35. (New)

The method of claim 34 wherein said generating step comprises using double haploid breeding.

36. (New)

A method of producing a 34B97 progeny maize plant in a plant breeding program comprising:
obtaining the maize plant, or its parts, produced by growing the hybrid maize seed designated 34B97,
utilizing said plant or parts thereof as a source of breeding material, and preferentially selecting for a 34B97 progeny plant with at least two desirable morphological or physiological characteristics of the plant or parts thereof produced by growing the hybrid maize seed designated 34B97,
said at least two morphological or physiological characteristics selected from the characteristics listed on the chart in Tables 1-4, thereby producing said progeny maize plant.

37. (New)

The 34B97 progeny maize plant produced by the method of claim 36, wherein the pedigree of said 34B97 progeny maize plant has two or less cross-pollinations to a maize plant other than the hybrid maize seed designated 34B97.

38. (New)

The method of claim 36 wherein the maize plant breeding program comprises one or more of the following: recurrent selection, backcrossing, pedigree breeding, restriction fragment length polymorphism enhanced selection, genetic marker enhanced selection, making double haploids and transformation techniques.

39. (New)

A method for producing a population of 34B97 progeny hybrid maize plants comprising:
(a) obtaining a first generation progeny maize seed produced by crossing the maize plant produced by growing the hybrid maize seed designated 34B97 with a second maize plant;
(b) growing said first generation progeny maize seed to produce F_1 generation maize plants and obtaining self-pollinated seed from said F_1 generation maize plants;
(c) growing said self-pollinated seed to produce F_2 maize plants and obtaining further self-pollinated seed from said F_2 maize plants; and

(d) repeating the steps of growing and harvesting successive filial generations by selecting for morphological and physiological traits in Table(s) 1-4 to obtain a population of 34B97 progeny hybrid maize plants.

40. (New)

The population of 34B97 progeny hybrid maize plants produced by the method of claim 39, said population, on average, deriving at least 50% of its ancestral alleles from 34B97.

41. (New)

A hybrid seed selected from the population of 34B97 progeny hybrid maize plants produced by the method of claim 39, said hybrid seed deriving at least 50% of its ancestral alleles from 34B97.

42. (New)

The method of claim 39, further comprising applying double haploid methods to said F₁ generation maize plant or to a successive filial generation thereof.

43. (New)

A method of producing an hybrid maize plant derived from the maize variety 34B97, the method comprising the steps of:

(a) preparing a progeny plant derived from maize variety 34B97 by crossing a plant of the maize variety 34B97 with a second maize plant, wherein a sample of the seed of the maize variety 34B97 was deposited under ATCC Accession No. _____;

(b) crossing the progeny plant with itself or a second plant to produce a seed of a progeny plant of a subsequent generation;

(c) growing a progeny plant of a subsequent generation from said seed and crossing the progeny plant of a subsequent generation with itself or a second plant; and

(d) repeating steps (b) and (c) for an additional 3-5 generations to produce a hybrid maize plant derived from the hybrid variety 34B97.